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Surgery for trachoma in Burma

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SUMMARY The problem of trachoma in Burma is presented. For its major sight-threatening complication of trichiasis a surgical procedure is described which is simple, effective, economical, and without any cosmetic blemish.

With this procedure 1861 cases of different grades of trichiasis were operated upon at the Eye, ENT Hospital, Rangoon, with 528 cases followed up at 1 year. The results are entirely satisfactory when the operations are performed for first and second degree trichiasis, and for trichiasis of our third degree grading the success rate is 95%.

Trachoma is prevalent in Burma and is known to have existed as early as AD 800–1200. It is a disease of the central dry zone, and the mere presence of trachomatous 'sleepy eye' is enough to identify the person as a native of that area. The incidence is high (Wilcocks, 1944, 1949), but no thorough study and survey of the disease was done until 1962.

In April 1962 a team of senior ophthalmologists (including the author) did a road-side survey of trachoma in 2 districts of the dry zone. This indicated that trachoma was present in more than 80% of 3862 persons examined and confirmed that it was the single most important cause of blindness in the region. A trachoma control project was first launched by the national health authorities in 1964. Since 1966 the project has been assisted by WHO and UNICEF.

The overall cost for the programme to the end of March 1974 from its beginning in 1964 has been £600 000, and approximately 70 000 cases of loss of vision have been prevented (Ko Lay *et al.*, 1976).

During the natural course of the disease the palpebral conjunctiva is severely scarred owing to the replacement of trachoma follicles by fibrous tissue. The tarsal plates, which in the initial phase show a cellular infiltration are later deformed and thickened. These 2 mechanisms lead to entropion and/or trichiasis.

There are 4 main divisions of the work of the campaign: (1) Finding and registering the trachoma patients; (2) treatment of the disease itself; (3) treatment of the complications, for example surgical repair for trichiasis; (4) health education. This paper is concerned with the third of these.

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Materials and methods

Between January 1971 and December 1975, 1861 patients from different parts of Burma were referred and operated upon at the Eye, ENT Hospital, Rangoon.

Trichiasis cases were classified by the author into 3 grades: (1) Trichiasis involving half the length of lid margin, the lid being soft and pliable (459 patients); (2) trichiasis involving the whole length of lid margin, the lid being still soft and pliable (1008 patients); (3) trichiasis involving the whole length of lid margin, but the lid being hard on palpation. Pliability is lost and the eversion of eyelids becomes very difficult. The tarsoconjunctival margin becomes rounded off and there is general contraction of the conjunctival sac (394 patients).

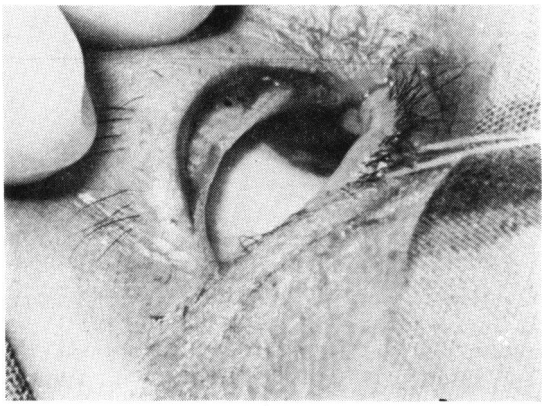
OPERATION FOR TRICHIASIS: THE GREY LINE SPLIT

The principle of this procedure is the eversion of the lid margin so that the cilia do not come in contact with the globe. The instruments required are 1 Bard Parker No. 15 knife and holder, 1 lid guard, 3 or 4 double-armed 5–0 black silk sutures, a petroleum jelly gauze roll for each eyelid, 30 × 5 mm.

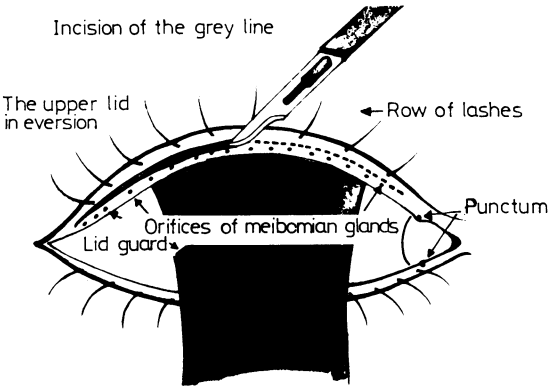
Local anaesthesia is provided by infiltration of 2 ml of 2% lignocaine into the neuromuscular plane of the upper eyelid, supplemented with topical surface anaesthesia of amethocaine (tetracaine) 1% into the conjunctival sac is sufficient for this procedure.

Important steps in the operation are: (1) Precise incision of the grey line; (2) accurate insertion of the sutures; (3) proper positioning of the gauze roll and tying of the sutures.

The incision. The free border is split into skin



1a



1b

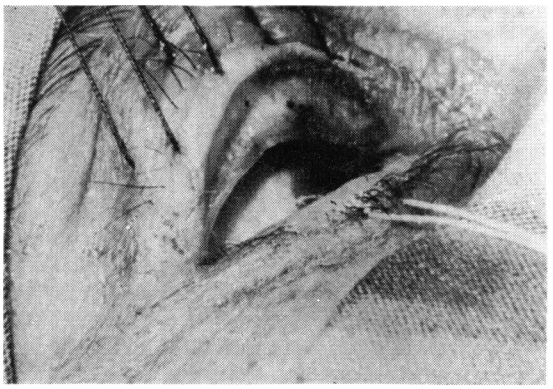
Figs. 1a and b *The lid margin is split into skin muscle and tarsoconjunctival layers*

muscle and tarsoconjunctival layers (Figs. 1*a* and 1*b*). The dissection is carried upward carefully and precisely for 2 or 3 mm to obtain good separation. The depth of the incision is of critical importance, because too superficial an incision fails to achieve the desired amount of elevation of the lashes, while an unnecessarily deep incision causes haemorrhage, formation of excess granulation tissues, and cosmetic blemish.

The sutures. One arm of a double-armed suture is passed through the conjunctiva of the upper fornix just above the tarsal plate, emerging on the skin surface at a point 6 mm from the margin of the lid. The second suture enters the conjunctiva in close proximity to the first one, but the needle is then passed anteriorly to the tarsal plate to emerge on the skin surface at a point 1 mm from the lid margin. Usually 3 sutures are placed equidistant from one another (Figs. 2*a* and 2*b*).

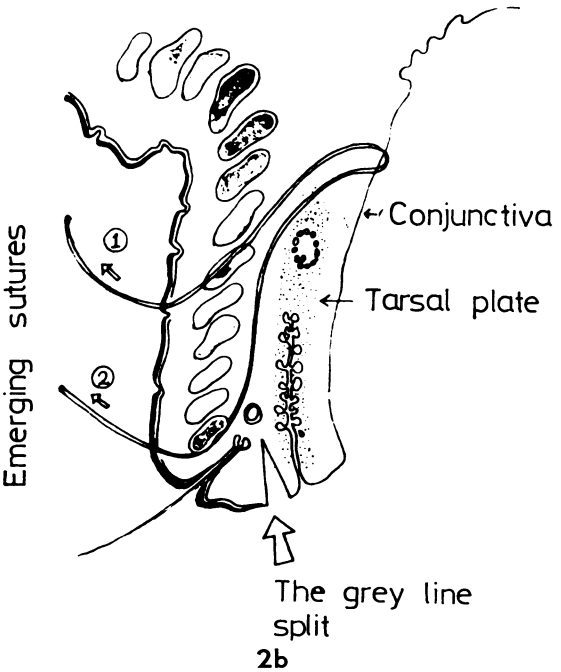
Positioning of gauze roll. A petroleum jelly gauze roll impregnated with antibiotic solution is placed horizontally between the 2 arms of the sutures and properly tied (Figs. 3*a*, 3*b*, 3*c*). The gauze roll acts as a fulcrum for the everting force of the sutures. Tightening of the sutures causes the grey line incision to gape and everts the lid margin with the lashes. This procedure elevates the lashes by approximately 90°, the amount depending on the pliability of the lid.

The grey line wound is allowed to heal by granulation tissue, which gradually becomes covered with



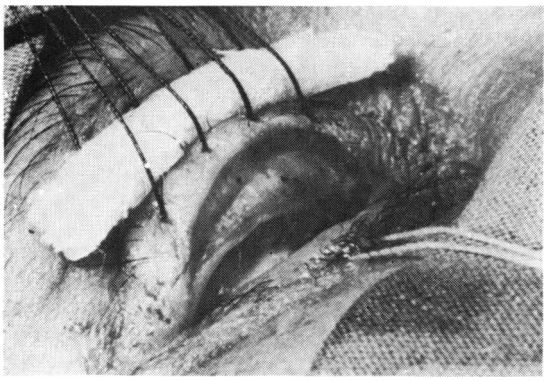
2a

After insertion of the sutures

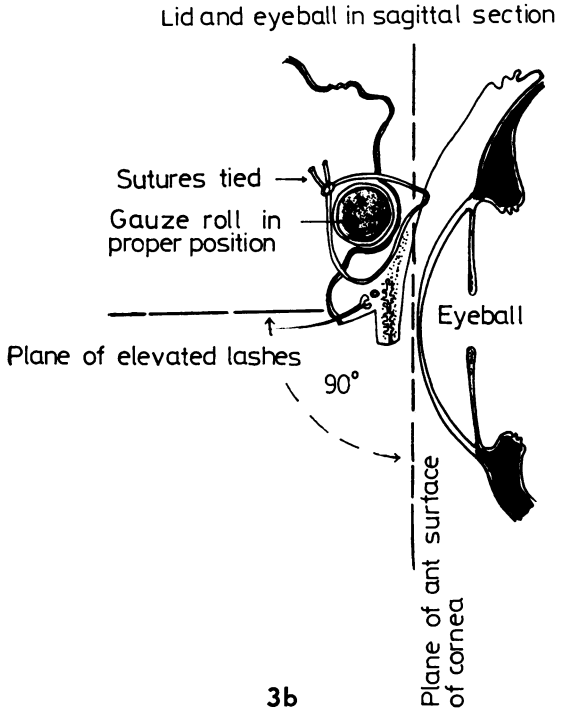


2b

Figs. 2a and b *Insertion of sutures*



3a



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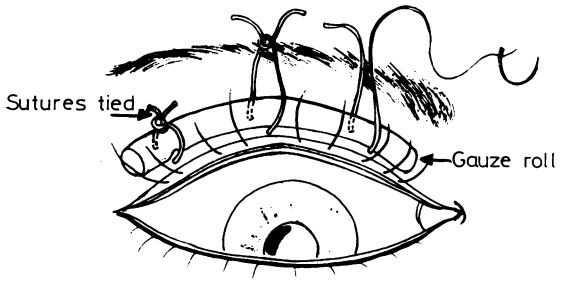


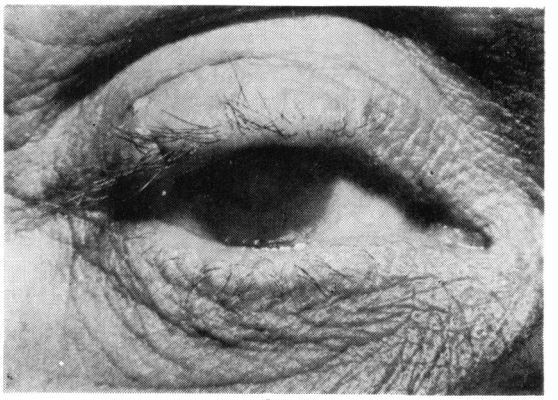
Emerging sutures and gauze roll in position on the upper eye lid

3c

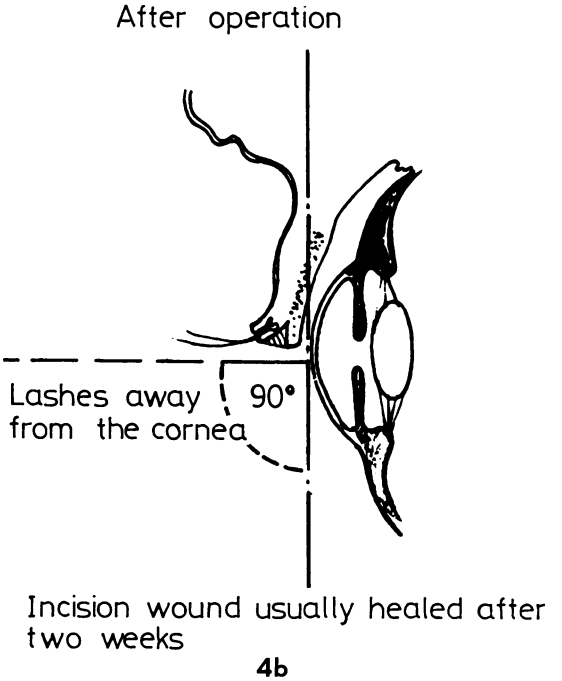
epithelium. The stitches are removed after 2 weeks (Figs. 4*a* and 4*b*).

Results

Of the 1861 trichiasis cases operated upon between January 1971 and December 1975 only 528 were available for follow-up 1 year after operation



4a



4b

Figs. 4a and b *Postoperative result, showing the eversion of the eye lashes*

← Figs. 3a, b, and c *Positioning of gauze roll*

Table 1 *Successful operations by the grey line split*

Degree of trichiasis	*Number of patients*	*Number successful at 1 year*
1	128	128
2	272	271
3	128	121

(Table 1). Of these 128 were grade I and all had a successful result. Out of 272 of our grade II, 1 case was observed to be a failure after 3 months. The lashes did not evert on the temporal half, though the degree of eversion was better than immediately after the operation. Of the remaining 128 cases categorised as our grade III, 121 were successful, but the remaining 7 cases had redeveloped trichiasis as early as 1 month postoperatively. The remaining 1333 cases never returned for assessment and recording after removal of their stitches at the end of the second week.

The degree of eversion achieved tended to be 90° or less in grade III patients, where the conjunctiva and tarsal plate were very severely scarred. Failure was more frequent within this group. The permanency of the result of this operation also depends on the state of trachoma. If there are recurrences of infection with repeated scarring of the conjunctiva and tarsus the results are usually unsatisfactory. It is therefore advisable to continue medical treatment of trachoma along with the surgery or to carry out surgery when the disease is quiet.

Discussion

The superiority of this method over other surgical techniques lies on two main points: (1) *Simplicity,* for no assistant is needed and the procedure takes only 5 to 10 minutes. (2) *The depth of incision* may be varied with the degree and state of trichiasis and/or entropion. Bleeding is minimal. Only a few instruments are required, as they can be sterilised wherever the operation is to be done. This is especially important when it is desirable for the doctor to go to the patient and more so when there are thousands of patients with trichiasis waiting for surgery all over the country.

Varying the depth of the incision to the degree and state of trichiasis is important. If the incision is too shallow, that is, less than 2 mm in depth, the lashes invert again after a few months because the cleavage is thin and it cannot effectively overcome the distorted tarsus. Only when the incision is deep enough, 2 to 3 mm, will it produce a widely separated postoperative intermarginal wound resulting in the desired eversion of eye lashes.

Economy of the operation must also be stressed. In Burma the cost of materials for surgery is approximately equal to 5p. The outpatient surgery and minimal postoperative care mean negligible loss of working time for patients.

Paramedical personnel such as health assistants and nurses can be trained to master this surgical technique in a short time. In a country like Burma where the prevalence of trichiasis is between 5 and 7% in the trachoma endemic area, and where there are few ophthalmologists, this fact is important.

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